

# Contraception Answers to Questions You Did Not Want to be Asked

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# Objectives

- To Understand:
  - Menstrual Cycle and Conception
  - Contraception relates to Conception
- To Answer:
  - Why a method works
  - By giving you the how of the method you will be able to answer the why of the question

# Some Really Great Questions

What is wrong with me I am bleeding all the time on the pill?

Will I get fat when I take the shot?

Why does my boyfriend's condom always fall off?

# To understand contraception one must understand conception

- Conception: Systems involved
  - Head
  - Ovaries
  - Uterus
  - Sperm
  - Hormones
- Contraception
  - Occurs if there is interruption at any point

# Question

“How did I get pregnant? We only had sex once and it was during my period.”

# Where does conception begin?

- Conception starts in the Brain
- Hypothalamus
  - GnRH- Gonadotropin Releasing Hormone
- Pituitary Gland
  - FSH- Follicle Stimulation Hormone
- Hormones playing well together

# Ovaries

- Follicles
  - Ovum (egg) begin to develop in the first 3mos of intrauterine life and at birth a women will have all the eggs will ever have
    - 700,000 at birth
    - 400,000 at puberty
    - 1000 by menopause
- Effect of FSH on the ovaries
  - Stimulates follicles to mature

# Estrogen

What does estrogen do?

It is what makes women women!

Breast

Hips

Soft Skin

Higher Pitched Voices

Effect on:

Uterus

Cervix

# Back to the Head

- Hypothalamus
  - Down regulates
  - GnRH
- Pituitary
  - LH- Luteinizing Hormone

# Female Reproductive System

- Ovaries
  - Release of ovum/ egg
  - Formation of corpus luteum
- Ovum and Sperm
  - Fertilization
  - Must take place in fallopian tube
- Time of intercourse and conception rate
  - 25-28% rate of conception if intercourse occurs 1-2 days before
  - 8-10% rate of conception if intercourse occurs within 24 hours ovulation

# Sperm

- Number of sperm produced
  - 1000/second from each testicle
- Number per ejaculate
  - 350 million per 3-5 ml
- Needed to fertilize ovum
  - 3 million of the most vigorous swimmers
- How long can a sperm live
  - Up to 5 days in fertile mucus

# Pregnancy

- Fertilization
- Fertilized ovum descends down the fallopian tube
- Implants in the lush lining of uterus
- Corpus Luteum
  - Progesterone

# No fertilization

- 24 hours post-ovulation the ovum can no longer be fertilized
- Corpus Luteum dies within 9-11 days
- Menses occurs within 14 days of ovulation if no pregnancy

# Cycle Length

- Normal cycle range
  - 21 to 35 days
- Ovulation occurs
  - 14 days before the beginning of the next cycle
- Why the variability in cycle length

# Answer

How did I get pregnant? We only had sex once and it was during my period.

Short cycle ( 21) with ovulation occurring on the 7<sup>th</sup> day of the cycle

Another possibility ovulation occurred on day 10 and Sperm can live up to 5 days in the upper reproductive tract

# How Does Contraception Work

- **Interruption prevents conception:.**
  - **Hormonal Contraception**
    - Effects release of ovum
    - Effect the uterus and the cervix
  - **IUD/ IUS**
    - Effect the environment of uterus and cervix
    - Prevent the ovulation
  - **Barrier Methods**
    - Prevents sperm from fertilizing ovum
  - **Sterilization**
  - **Natural Family Planning**
    - Avoiding intercourse during the Window of fertility
  - **Abstinence**

# Hormonal Methods

Interruption of hormones that like to play together

## CHC- Combination Hormonal Contraceptive

COC- Combination Oral Contraceptives

Ortho Evra Patch

Nuva Ring

## Progestin Only Contraceptives

POP- Progestin Only Pills

Injectable Contraceptives

Progestin Implants

# Combination Hormonal Contraceptive/ CHC

- Require a steady level of hormones
- Prevent Ovulation
- Change the environment of the uterus and cervix

# CHC

- Prevention of Ovulation
- Estrogen
  - Suppresses release of FSH
  - No formation of dominant follicle
- Progestin
  - Suppresses release of LH
  - No LH surge

# CHC

## Changes to the uterus and cervix

- Progestin
  - Changes:
    - Lining of uterus
    - Cervical mucus
    - Movement of ovum in fallopian tubes
- Estrogen
  - Stabilizes the endometrium
    - Prevents break through bleeding/ BTB

# CHC

- Changes to menstrual cycle
  - Regular
  - Lighter
  - Shorter
  - Less cramping
  - Fewer PMS Symptoms

# Question

- Virginia why did you stop using your birth control pill?

# Answer

- So--why did the client stop using her method or never start?
- Fear of serious health issue related to method either real or perceived
- Unpleasant but not serious side effects
- Unsure if method is effective

# CHC

- Who can take CHC?
  - Healthy Women of reproductive age
- Who should not take CHC?
  - Increased risk for stroke
  - Pregnancy related issues
  - Liver problems

# Increased risk for stroke

- Those condition that increase likelihood of client having a stroke or blood clots.
  - Hypertension - uncontrolled
  - History of blood clots
  - Disease effecting clotting factors
  - Cardiovascular disease
  - History of stroke
  - Diabetes with complications
  - Obesity
  - Smoker over 35
  - Migraines headaches with auras

# Pregnancy related issues

- Pregnancy
- Postpartum-  $\leq$  4 weeks
- Breast feeding

# Pregnancy

I did not know I was pregnant and I kept taking my pills.  
Have I hurt my baby?

“Women who become pregnant while taking oral contraceptives or women who inadvertently take birth control pills in early pregnancy should be advised that the risk of a significant congenital anomaly is no greater than the general rate of 2-3%. This recommendation can be extended to those pregnant woman who have been exposed to a progestational agent such as medroxyprogesterone acetate....”

- Speroff, A Clinical Guide for Contraception, Fourth Edition, 2005

# Liver problems

- Gallbladder disease
  - Estrogen impairs active transport of biliary components
- Liver adenomas
  - Can be produced by steroids of both estrogen and androgen families
- Acute liver disease

# Danger Signs

- **A**
  - **Abdominal Pain**
    - Blood Clot in the pelvis or liver
    - Benign liver tumor or gall bladder disease
    - Pregnancy
- **C**
  - **Chest Pain**
    - Blood Clots in lung
    - Heart attack
- **H**
  - **Headaches**
    - Stroke
    - Migraine
- **E**
  - **Eye Problems**
    - Stroke
    - Migraines with aura
- **S**
  - **Severe Leg Pain**
    - Blood clots
- **Remember ACHES**

# Myths about CHC

“Will I get cancer from being the pill?  
I am really worried about Breast  
Cancer.”

- The Women’s CAGE Study of 4575 women with breast cancer and 4682 controls found no increased risk of breast cancer (RR1.0) among women currently using pills and statistically significant decreased risk of breast among women who had previously used pills (RR.09)<sup>1</sup>
- Many years after stopping oral contraceptive use, the main effect may be protection against metastatic disease.<sup>2</sup>

# Other Cancers

- No consistent increased for cervical squamous cell carcinoma (85% of all cervical cancer) after controlling for confounding variables, such as number of sex partners
- Risk of a relatively uncommon type cervical cancer, adenocarcinoma, is increased 60%, but no extra screening is required other than recommended Pap screening

# Cancer Protection

- A positive note about CHC and cancer
  - Protection against
    - ovarian cancer
    - endometrial cancer

# Other Myths about CHC

“They started me on birth control pills 8 years ago when I was 16 and I was not having sex. Now I have been off the pills for 18 months and I cannot get pregnant. Is the pill the reason I am not getting pregnant?”

There is no evidence that CHC pose a risk to future fertility

# Myths about CHC

“I have been on pills for 8 years when should I take a pill break?”

They call women who take pill breaks pregnant!

# Unpleasant but not serious side effects

- At six months after initiating or switching to a new contraceptive, only 68% of new users and 84% switchers continue to use the method
- 46% discontinues because of side effects
  - 80% do not replace or at least start a less reliable method

- When dealing with side effects it is a side effect if the client says it is present
- A method is acceptable if the women says it is acceptable
- We can educate client to the likelihood of the side effect being attributed to her method
- Solutions must be based on the patient reality

- Geraghty P , Contraceptive Technology, San Francisco, March, 2007

# Side Effects of CHC

- Nausea and Vomiting
  - Side effect of the estrogens
- Possible Solutions
  - Take at night never on empty stomach
  - If catching up missed pills dose 1 pill every 12 hours
  - Decrease estrogen dose
  - NuvaRing might be an alternative

# Side Effects of CHC

- Bloating and constipation
  - Side effect of the progestin
  - May occur through out the entire cycle
    - Change to a progestin from another family
    - Occurs at menses
    - Consider extended cycles

# Question

- I am spotting between periods every month on these pills am I going to get pregnant?

# Side Effects of CHC

- Break Through Bleeding
  - Common during first three months
  - Inconsistent pill usage
  - Irregular bleeding after long term usage

# Side Effect of CHC

- Amenorrhea/ No withdraw bleeding
  - Reassure client that is quite normal
  - No medical problem from not having menses
  - Always offer a pregnancy test
  - Another way to rule out pregnancy
    - Basal body temp of  $<98$  degrees last day of inactive pills

- Speroff L, Clinical Gynecologic Endocrinology and Infertility 7<sup>th</sup> edition, 2005

# Answer

- I am spotting between periods every month on these pills am I going to get pregnant?
- Spotting is very common in early CHC usage
- Inconsistent pill taking can lead to BTB-but is not associated with break through ovulation
- Chronic inconsistent pill taking can lead to break through ovulation

# Side Effect of CHC

- Breast Tenderness
  - Effect of either estrogen or progestin
  - Occur in 20% of natural cycles
  - Solutions
    - Self limiting
    - If persist lower either or both estrogen and progestin
    - Extended cycles

- HatcherR, et al. Contraceptive Technology 18<sup>th</sup> ed. 2004

# Side Effect of CHC

- Decrease libido
  - An Infrequent occurrence
  - May be relate to decreased vaginal secretions
  - Are there symptoms of depression
- On the contrary
  - Many women find they have an increase libido because they do not need to worry about pregnancy

# Side Effect of CHC

- Headaches
- R/O Migraines with Aura
  - Discontinue CHC
- Headaches without Aura
  - If occurs during inactive pill week think extended cycles
- During the entire cycle
  - Adjust hormone dosage

# Question

“Am I going to get fat when I am on the pill?”

# Side Effect of CHC

- Weight Gain
  - There are no studies that associate CHC usage and weight gain
  - Hormones do have some effect on body size
  - Women, in general, gain weight over time

# Side Effect of CHC

- Acne
  - Androgenic side effect
  - Less of a problem on the lower dose preparations
  - Most CHC may improve acne or will not make it worse. Only two actually did testing and can use in their labeling Ortho Tri-Cyclen and Estrostep

# Side Effects of the Patch

- Skin irritations at the patch site
- Patch falling off

# Side effects related to delivery method

Symptoms	30ug oc	Patch <sup>1</sup>	Ring <sup>2</sup>
Headache	22.1%	21.9%	5.8%
BTB Month 1	11.4%	18.3%	5.8%
Nausea	18.3%	20.4%	3.2%
Mastalgia	5.8%	18.7%	2.6%

<sup>1</sup>Audet et al. JAMA. 2001;285:2347-54. <sup>2</sup>Dieben,et al. Obstet andGynecol . 2002; 100:585-93

# Question

“My daughter is not sexually active. I took her to see the nurse practitioner because she was having ‘female troubles’. Why did the nurse practitioner put her on Birth control pills?”

# Benefits to CHC

- Rapid reversibility
- Contraceptive Benefits
  - Reduction of maternal deaths
    - the CDC calculated there were 11.8 per 100,000 in the last decade of the 20<sup>th</sup> century
  - Reduction of ectopic pregnancy
    - At least 1 in 80 pregnancies is an ectopic, the leading cause of maternal death in the 1<sup>st</sup> trimester
- Menstrual cycle benefits
- Cancer reduction
- Reduction in infertility

# Answer

- The nurse practitioner was going to control her cycles and protect her future fertility.

# Question

- Virginia asked, “I keep reading about girls who get pregnant on pills. Are these low dose pills strong enough or are the girls doing something wrong?”

# Combination Oral Contraceptives

- Effectiveness
  - **Theoretical vs User effect**
  - **Perfect use vs typical**
  - **Perfect use**
    - 3 women per 1000 will become pregnant during first year
  - **Typical use**
    - 80 women per 1000 will become pregnant during the first year
    - 850 women out of a thousand will become pregnant in one year without any contraception
  - **Causes of decrease effectiveness**

# Combination Oral Contraceptives

- Other causes of reduced effectiveness
  - Gastroenteritis
  - Obesity
  - Interaction with medications
    - Know the diagnosis rather than the medication
      - Seizure Disorders
      - Tuberculosis
      - Skin and nail fungal infections
      - Depression
      - HIV infections
- Policar, Contraceptive Technology March 8-10, 2007

# Ortho Evra Patch

- Effectiveness
  - In perfect use
    - 8 pregnancy per 1000 or a risk of .8%
  - In typical use:
    - no typical user rates currently available
    - In 3 clinical trial the perfect patch use rate was 92.9% to 93.6% whereas OC perfect use rate was 77.2% to 88.77%

# Ortho Evra Patch

- Reduced effectiveness
  - Site of application
- Women weigh more 198 pounds need to be advised there could be reduced effectiveness
- There are the same drug interactions as with COCs

# NuvaRing

- Effectiveness
  - Overall pregnancy rate is 0.3% (*Trussell 2004*)
  - Typical user rates
    - not currently available
  - Effectiveness not effected by weight
  - Drug interactions
    - The same as with other CHC

# Answer

- For most clients it is not the dosage or the delivery system of the CHC that makes it less effective, but rather if the method is used correctly. It is also important that the correct use of the method fits into the clients life style.

Stand up

And

Take a breath

# Interesting things about COC

When do you start:

First day

First Sunday *hyper link*

Quick Start

When do you take pill

Same time each day

# Active Pills vs Inactive Pills

- 21/7
  - One active pill every day for 21 days
  - 7 inactive pills
- 24/4-Yaz and LoEstrin 24
  - One active pill for 24 days then
  - 4 inactive pills
- Extended dosage
  - 84 active pills then
  - 7 inactive pills

# Question

“I have problems remembering to take my pill everyday and I hate the spotting when I forget. What method is go for me? Oh and I hate needles and I am afraid of the IUD.”

# Ortho Evra Patch *insert link*

- When to start
  - Same guidelines as COC
- When to apply the patch
  - New patch every seven days
- Schedule
  - Three weeks on
  - One patch free week

# Ortho Evra Patch

- Attachment Problems
  - Clean Dry Skin
  - Do not tape down
  - Patch falls off
  - Forgot to change patch
  - Gray ring
  - Remove adhesive
- Activities
  - Anything she wants to do

# Ortho Evra Patch

## – Negative Press

- The patient is exposed to about 60% more estrogen when using Ortho Evra than if taking a typical birth control pill containing 35 mcg of estrogen
- FDA mandates that their label be updated with this warning

# Nuva ring

- When to start the ring
  - First day of natural menses
  - Switching from COC
  - Progestin only method
  - IUS or injection
- Schedule
  - In for 21 days
  - Out for 7 days

# NuvaRing

- Where does it go
  - Anywhere inside the vagina
- Will I or my partner feel it
  - Most likely not
- What if it falls out?
  - Put it back in
- Storage
  - Room temperature for up to 4 months

# Answer

The patch or the ring are excellent CHC method that do not require daily involvement by the client.

# Question

“I am forty-five years old and have problems with my blood pressure. The doctor wants to put me on the “mini pill” of all things. Is that a good method for me?”

# Progestin-Only Contraceptive POC

- Active ingredient
  - Progestin
- Three Delivery Systems
  - Oral
  - Injectable
  - Implant
- Mechanism of action
  - Interfering with endogenous hormones
    - *What does progestin do?*

# Progestin only

- Advantages
  - No serious estrogen related side effects
  - Many similar to CHC
- Who can use this method?
  - Anyone and many others who cannot use CHC

# Progestin only Contraceptive

- Disadvantage No protection for STDs
  - Irregular bleeding patterns
  - Weight gain
  - Depression
  - Bone Loss

# Mini Pills

- Effectiveness
  - Perfect use .3%
  - Typical use 8%
- How to manage pill usage
  - Daily
  - When to use back up methods
- Benefits
  - Breast feeding
  - Peri-menopause
- Bleeding patterns

# Mini Pill

- “Good efficacy with the mini pill requires regularity, taking the pill at the same time each day. There is less room for forgetting, and, therefore, the mini pill is probably not a good choice for a disorganized adult or for the average adolescent.”

# Answer

- The mini pill works best in women committed to taking the pill regularly and who have a reduced potential to become pregnant. For women in their forties there is the added benefit from supplying progestin during cycles where there is no **ovulation** and therefore no progesterone.

# Question

“I have just started Depo Provera and I am spotting all the time. Is this normal or is there something wrong?”

# Injectable Progesterone

- Depo Provera 150mg IM
- Depo-subQ Provera 104

# Injectable progesterone

- Mechanism of Action
- Effectiveness
  - Very effective
- Proper management
  - Injection every 11-13 weeks
  - Back up
- Advantages
  - Similar to all non -CHC
  - Less drug interaction
- Disadvantages
  - Slow return of fertility
  - Weight gain
  - Irregular Bleeding

# Bone Mass Density

- Loss of Bone Mass Density- BMD
  - Decrease of 3.1% over 2 years
  - Most effected
    - Started before age 21
    - Used longer than 15 years
- Do we regain BMD?

“It is unlikely that bone loss occurs sufficiently to raise the risk of osteoporosis later in life.”

# Answer

- Irregular bleeding on Depo-Provera in the early months of usage is to be expected and normal.
- With good counseling women will understand the irregular bleeding patterns and be more accepting, however, never underestimate how significant unexpected irregular bleeding is to a woman.

# Question

“They took those Norplant implants off the market. Why would I want on of those new implants Implanon?”

# Progestin Implants

- Norplant
- Implanon
  - Single rod *put in*
  - Require medical insertion and removal

# Implanon

- Effectiveness
  - Pregnancy rate of only 0.5% in first year
- Mechanism of Action
- When to start
- Advantages
- Disadvantages
  - Requires a trained provider
  - Bleeding pattern

# Answer

Implanon is not your older sister's implant!

More effective

Easier to insert and remove

# Emergency Contraception

- Is this a method?
- How is it used?
- What is the mechanism of action?
- How effective?
  - Yuzpe
    - 20-32 pregnancy per 1000 act of unprotected intercourse
  - Plan B
    - 12 pregnancy per 1000 act of unprotected intercourse
- Counseling issues
  - Contraception Now!

# Yuzpe

OVRAL\*WHITE 2 pills followed by 2 pills 12 hours later

LO-OVRAL\*WHITE 4 pills followed by 4 pill 12 hr later

NORDETTE\*LT. ORANGE 4 pills followed by 4 pill 12 hr later

LEVELLEN\*LT. ORANGE 4 pills followed by 4 pill 12 hr later

TRI-PHASIL\*YELLOW 4 pills followed by 4 pill 12 hr later

TRI-LEVLEN\*YELLOW 4 pills followed by 4 pill 12 hr later

ALESSE\*PINK 5 pills followed by 5 pill 12 hr later

- \*The above pills contain ethinyl estradiol and either norgestrel or levonorgestrel

# Question

What does the quote “One bad apple will spoil the basket” have to do with contraception?

# IUD/IUS

- History of IUD
  - Early work in 1930s
  - Margulies Coil 1960
  - Lippes Loop 1970
  - Dalkon Shield 1970
- 1980 decreased use of IUD
  - 1981- 2.2 million users
  - 1985- 0.7 million users
  - 1995- 0.3 million users
  - World wide became the most popular method

# Answer

- A poorly designed device and sexual behavior changes cause the US to be afraid of IUDs
- Profit issues not medical issues resulted in other IUD to fall from favor.
- Finally risk behavior and not the IUDs caused PID

# Today's IUD/IUS

- Two types available
  - ParaGard
    - T shaped
    - Copper Bands
  - Mirena
    - T shaped
    - Release Levonorgestrel

# ParaGard

- Effectiveness
  - 0.5-0.8 % rate of pregnancy
- Mechanism of action
- Advantages
- Disadvantages
- What about infection?

# Mirena

- Effectiveness
  - Slightly more effective than the ParaGard
- Mechanism of action
- Advantages
  - Better bleeding pattern
- Disadvantages

Other methods

# Female Barrier Methods

- Diaphragm
  - Perfect use 6% pregnancy rate
  - Typical 16%
- Cervical Cap
  - Perfect 9-26 %
  - Typical 16-32%
- Today Sponge
  - Perfect 9-20%
  - Typical 16-32%

# Male Condoms

- Myth Condoms don't work
- Effectiveness
  - Perfect use 2% pregnancy rate
  - Typical use 15 % pregnancy rate
- The Always fall of or break
- Myth Buster
  - Condom mishaps 3-5%
  - Proper usage

# Female Condoms

- Effectiveness
  - Perfect use
    - 5% pregnancy rate
  - Typical use
    - 21%
- How used

# Spermicides

- Effectiveness
  - Perfect 18% pregnancy rate
  - Typical 29 % pregnancy
- Mechanism
  - Block cervix
  - Kills sperm
- Counseling

# Withdrawal

“You use withdrawal as your method?”

- Effectiveness
  - Perfect use 4% pregnancy rate
  - Typical use 27 % pregnancy rate
    - Spermicides
      - Perfect 18% pregnancy rate
      - Typical 29 % pregnancy
- Take home messages

Knowledge is Power